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Attitude Towards Online Product Endorsement Using Digital Celebrities: The Case of Laptops

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ABSTRACT

Although the broad concept of celebrity endorsement is not new, the popularity of its Social Media version skyrocketed over the last several years, being exploited even by notorious and top-tier companies. A substantial body of academic research approached the traditional celebrities' endorsement, leaving rather unstudied the impact of digital celebrities' endorsement power. Aiming at reducing the literature gap, the present study investigated the audience's attitude towards online endorsement that includes famous vloggers (a category of digital celebrities) and its effect on future behaviors. In this sense, a conceptual model was tested using the structural equation modeling technique in the context of a primary research. The results unveiled that the perceived characteristics of the celebrity reflect on the overall attitude towards the vlogger. Despite influencing the attitude towards endorsed products, video content, product recommendation and engagement on source's Social Media channel, the attitude towards the celebrity didn't have a direct effect on purchase intention. The attitude towards the video content affected the attitude towards the product and both were shown to have a positive influence on purchase intention and recommendation. Yet, only the first one reflected on actions concerning celebrity's online platform.

Introduction

Although there are many attempts to define celebrity endorsement (Fang & Jian, 2015), one of the popular versions was proposed by Bergkvist and Zhou (2016, p. 3) and refers to "an agreement between an individual who enjoys public recognition (a celebrity) and an entity (e.g. a brand) to use the celebrity for the purpose of promoting the entity". Traditionally, the celebrity status was tied to individuals who cultivated their fame through an acknowledged professional talent in music, film

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and television, writing, sports, politics, business, etc., displayed on TV, cinema and other offline media (Hsu & Tsou, 2011; Ambroise & Albert, 2020; Kowalczyk & Pounders, 2016; Djafarova & Rushworth, 2017). With the worldwide adoption of the Internet and Social Media, the traditional celebrities' exposure has been remodeled by expanding their dissemination through the online environment; at the same time, it has set the scene for the emergence of a new type of celebrities with exclusively web built social capital - the so called digital, online or internet celebrities (Hou, 2019; Chen et al., 2021). Under digital celebrities' umbrella are gathered individuals that follow different online pathways for celebrification (Brooks et al., 2021, p. 531), such as vloggers, bloggers, streamers, instafamous, etc. (Li, 2018). In their quest for fame, digital celebrities thrive in displaying their stories, skills, knowledge or expertise through self-generated content (video, photo, text) shared on personal Social Media accounts, attracting and engaging with a base of followers (Schouten et al., 2020; Shi et al., 2021; Bayazit et al., 2017). Albeit traditional and digital celebrities have common assets such as public visibility, fame/renown, admiration and power to attract a large audience, their contrasting communication manner reflects on viewers' attachment and performers' perceived credibility (Moldovan & Ciornea, 2019). Typically, traditional celebrities communicate one-way, impersonal and through impersonal channels, consequently the parasocial relationships don't involve a reciprocal interaction and emotional connection (Kowert & Daniel, 2021). Their counterparts - digital celebrities - alternate between one-sided and two-sided interactions with fans/followers, providing frequent insights into their personal life, interests and opinions (Chapple & Cownie, 2017; Bayazit et al., 2017; Sokolova & Kefi, 2020); wrapped in intimacy, this changes the nature of parasocial relationships to include some form of reciprocity, which eventually amplifies audience's attachment and celebrities' perceived credibility, turning them into valuable opinion leaders (Kowert & Daniel, 2021; Djafarova & Rushworth, 2017; Sokolova & Kefi, 2020; Chen et al., 2021).

Celebrity endorsement strategy has been extensively used by organizations around the world (Abirami & Krishnan, 2018; Schimmelpfennig & Hunt, 2019), to communicate in a wide variety of fields, from products (fashion and jewelry, beauty and body care, detergents, food, furniture and home decorations, auto/transportation vehicles, IT and appliances, medicine and supplies, sports professional gear, etc.) to services (restaurants, hospitality, travelling, education, financial services, etc.) and even in non-profit areas (NGO's), from mass-market brands (L'Oréal, Pepsi, Coca-Cola, Colgate, H&M, etc.) to luxury brands (Chanel, Louis Vuitton, Gucci, Jaeger-LeCoultre, Cartier, Oyster Yachts etc.) – see Appendix 1. Although the endorsement activities date back to the late nineteenth century (Erdogan, 1999), the majority exploited traditional celebrities' power, and just recently, the marketing tools extended to enroll digital celebrities too (WFA, 2018; Sokolova & Kefi, 2020; De Veirman et al., 2017; Chen et al., 2021). Companies' increased interest in digital celebrities' endorsement is unquestionable (WFA, 2018), however there is not enough evidence to state that we are witnessing the abandonment or reduction of traditional celebrities' use, as various scholars (e.g. Schouten et al., 2020) or practitioners have mentioned. Rather, there has been a transformation in how traditional celebrities communicate and are used as brands' spokespersons. It can be put forward that many traditional celebrities have created personal Social Media accounts (Kowalczyk & Pounders, 2016) that attracted hundreds of thousands to millions of followers, by

being active in content posting and sharing. For example, top 50 most followed accounts on Instagram, Twitter and Facebook are dominated by traditional celebrities, for Youtube there is an equal presence, and only on Tik-Tok rank do digital celebrities prevail (Appendix 2). In addition, some of the traditional celebrities (especially those under 35) post on their Social Media accounts self-made content in a more personal context and occasionally engage with their followers (e.g. reading and answering to questions posted during live broadcasts; Ambroise & Albert, 2020; Kowalczyk & Pounders, 2016), whilst highly famous digital celebrities (mega-influencers, with millions of followers) cut down the two-side communication. Consequently, at interaction level, the border between traditional celebrities active on Social Media platforms and digital celebrities is increasingly blurred. This can reflect on how their followers/fans perceive both categories and alter the endorsement mechanism unveiled by previous research. For example, by lowering their level of intimacy and becoming more impersonal, highly famous digital celebrities can diminish their credibility, trustworthiness and viewers' attachment; instead, those attributes might transfer to traditional celebrities active online, increasing their potential as key opinion leaders (Kowert & Daniel, 2021; Djafarova & Rushworth, 2017; Sokolova & Kefi, 2020; De Veirman et al., 2017; Chen et al., 2021). Regarding traditional celebrities' co-optation for endorsement, the main changes lay in the online playground of communication, which embodies a mixture of formats such as:

- paid promotional activities on Social Media platforms, like ads with celebrities (e.g. Lays, Samsung, Nivea, etc.).
- endorsing activities on the company's Social Media accounts, that integrate the offline campaigns in online, by sharing identical or adapted materials like ads, posters, pictures. E.g. Instagram accounts of Lays, Pepsi, L'Oréal, Chanel, Prada, Peugeot, Hublot (www.instagram.com). The first two formats focus on traditional celebrities use, regardless of their interaction in online, and engage fewer digital celebrities
- endorsing activities on the company's Social Media accounts, with content created exclusively for online. E.g. Chanel Instagram posted pictures with actress Penelope Cruz at Venice International Film Festival; Samsung Mobile Instagram posted pictures with BTS artists from concerts (www.instagram.com). Companies alternate between traditional and digital celebrities use.
- endorsing activities on celebrity's Social Media accounts, which used to be dominated by digital celebrities, yet extended to contract traditional celebrities with a more elevated level of engagement on their personal accounts. In case of traditional celebrities, the content doesn't follow the classical ads, being rather similar to digital celebrities' posts: videos or images shot for a magazine or behind the scenes, selfies with products, pictures at events while wearing the products, unconventional photos made for their account to simulate a personal campaign. Although there is a plethora of cases, Appendix 3 includes a selection of example from various countries, to pinpoint not only the usage by brands in various fields of activity and market positioning, but also the global approach.

However, we substantiate the need for future in-depth examination, to understand the phenomenon better.

The celebrity endorsement prevalence in business has been matched by a high academic interest (Ambroise & Albert, 2020; Schimmelpfennig & Hunt, 2019), with focus on traditional celebrities' use in the offline context (Bergkvist & Zhou, 2016). Instead, few have examined the endorsement

effectiveness of digital and traditional celebrities in online (Schouten et al., 2020; Shi et al., 2021). Among them, several papers sought to investigate the attitude in case of digital celebrities' endorsement (Bergkvist & Zhou, 2016), targeting to reveal how perceived attitude towards endorsed product/brand reflects on purchase, leaving the attitude towards endorser and its effect rather unstudied.

Therefore, the current study seeks to fill the literature gap in understanding the purchase mechanism driven by digital celebrity endorsement. Specifically, it examines the effects of attitude towards endorser, promoted product and content on purchase intention, product referrals (WOM) and engagement on Social Media (eWOM), in the case of online product endorsement using a digital celebrity.

Theoretical framework

A plethora of studies investigated the influence of traditional celebrities' characteristics in the context of product or brand endorsement (Bergkvist & Zhou, 2016), yet the digital segment is rather unstudied (Schouten et al., 2020). The effect of the traditional celebrities' attributes was predominantly measured and explained using the three-dimensional Source Credibility Model extended by Ohanian (1990) to incorporate the "expertise", "trustworthiness", and "attractiveness" of the source (Hedhli et al., 2021; Bergkvist & Zhou, 2016). The same model has been recently adopted to evaluate the digital celebrities' influence (AlFarraj et al., 2021; Moldovan & Ciornea, 2019; Choi & Lee, 2019; Ku et al., 2019; Chapple & Cownie, 2017; Hill et al., 2020). The "expertise" dimension refers to perceptions of knowledge, skills and experience of the source concerning the endorsed product/field; "trustworthiness" dimension assesses audience's perceptions on source's honesty, reliability and ability to make impartial statements (Erdogan et al., 2001; Ohanian, 1990). The core of "attractiveness" dimension is correlated to perceptions of source's physical appearance (Ohanian, 1990), yet other scholars extended the concept to include intangible traits such as likeability, personality, familiarity or homophily (Leung et al., 2018; Amos et al., 2008; Erdogan et al., 2001). Previous works confirmed that celebrity's perceived credibility is correlated with the acceptance and effectiveness of the message (Ohanian, 1990; Bergkvist & Zhou, 2016; Seiler & Kucza, 2017), with an impact on attitude towards the advertisement and the endorsed product (Singh & Banerjee, 2018; Erdogan, 1999). Many scholars tested the direct impact, with contradictory findings regarding the integrated components' importance (see Bhatt et al., 2013) or even underlining an insufficient direct effect on behavioural intentions (Ong & Ong, 2015). Others confirmed credibility's transfer to perceived source attitude as a mediator of the influence (Moldovan & Ciornea, 2019; Bekk & Spörrle, 2010; Chetioui et al., 2020; Lim et al., 2017). Based on the aforementioned findings and embracing Ajzen's (1991, p. 188) vision on attitude as a "favorable or unfavorable evaluation or appraisal of the behavior in question", we propose:

H_1: Perceived positive characteristics of the endorser source have a positive impact on the attitude towards the source

H_{1a}: Trustworthiness positively influences the attitude towards the digital celebrity

H_{1b}: Expertise positively influences the attitude towards the digital celebrity

H_{1c}: Attractiveness positively influences the attitude towards the digital celebrity

The endorsement strategy is rooted in the very ability of celebrities to make an impression (Fleck et al., 2012) and transfer their image or set of associations to the promoted products/brands (Amos et al., 2008; Singh & Banerjee, 2021), conveying them a meaning (see McCracken's meaning transfer theory, 1989). A fair amount of research on celebrity endorsement focused on capturing the direct effects of source's attributes, particularly credibility. Prior studies pointed out, in both traditional and digital celebrity contexts, that source credibility favorable influences the attitude towards the endorsed brand/product and attitude towards the advertisement or endorsed material (Schouten et al., 2020; La Ferle & Choi, 2016; Goldsmith et al., 2000; Muda et al., 2014; Singh & Banerjee, 2018; Seiler & Kucza, 2017; Bhatt et al., 2013; Ong & Ong, 2015; Ku et al., 2019; Choi & Lee, 2019). Considering that perceived credibility is reflected to some degree in the attitude towards endorser (Moldovan & Ciornea, 2019; Bekk & Spörle, 2010; Chetioui et al., 2020), it is reasonable to expect a similar transfer between endorser attitude and endorsed product/brand and communication material. Recent studies bring examples of confirmation, demonstrating the positive association between the attitude towards digital celebrity and the attitude towards endorsed product/brand (Chetioui et al., 2020; Moldovan & Ciornea, 2019). In similar lines, the attitude transference between the endorser source and endorsed material, has been proved for both traditional (Fleck et al., 2012) and digital celebrities (Moldovan & Ciornea, 2019; Chetioui et al., 2020). The causal sequence from advertisement attitude to brand attitude/product has been often illustrated in studies of ad effectiveness (see Goldsmith et al., 2000; Muda et al., 2014; La Ferle & Choi, 2016), revealing that a qualitative and appealing content can enhance the attitude towards the brand/product (Aggad et al., 2021). In particular, the attitude towards endorsed ad or digital celebrity-generated content is positively related to the attitude towards the endorsed brand/product (La Ferle & Choi, 2016; Moldovan & Ciornea, 2019; Seiler & Kucza, 2017; Muda et al., 2014; Goldsmith et al., 2000; Aggad et al., 2021). Following the lines of argumentation above, we propose:

H_2: There are positive relationships between the attitudes towards the endorser source, the endorsed content and the endorsed product

H_{2a}: The attitude towards the digital celebrity positively influences the attitude towards the endorsed product

H_{2b}: The attitude towards the digital celebrity positively influences the attitude towards the video content

H_{2c}: The attitude towards the video content positively influences the attitude towards the endorsed product

A wide variety of studies confirmed, often in the context of Theory of Planned Behavior TPB and Theory of Reasoned Action TRA, that attitude is a predictor of behavioral intentions (Knoll & Matthes, 2017; Montaño & Kasprzyk, 2015). In turn, purchase intention reflects the consumer's likelihood of buying a certain product, brand or service and acts as a direct antecedent of the actual behavior (Hsu & Tsou, 2011; Montaño & Kasprzyk, 2015). In terms of attitude effectiveness, precedent research showed that attitude towards the endorsed product/brand reflects directly and positively on the purchase intention, in both traditional and digital celebrities' cases (Singh &

Banerjee, 2018; Seiler & Kucza, 2017; Choi & Lee, 2019; Moldovan & Ciornea, 2019; Ku et al., 2019; Min et al., 2019; La Ferle & Choi, 2016; Chapple & Cownie, 2017; Chetioui et al., 2020; Goldsmith et al., 2000; Muda et al., 2014; Siqi & Yee, 2021). Further, a favorable attitude towards the endorsed product/brand can encourage the audience to recommend it (Chapple & Cownie, 2017; Moldovan & Ciornea, 2019), respectively to engage on the Social Media channel that posted the endorsing material, and which can be the celebrity's platform (Barger et al., 2016; Moldovan & Ciornea, 2019). These considerations give rise to the following:

H_3: The attitude towards the endorsed product has a positive impact on the future intentions
H_{3a}: The attitude towards the endorsed product positively influences the purchase intention
H_{3b}: The attitude towards the endorsed product positively influences the engagement on the source's Social Media channel
H_{3c}: The attitude towards the endorsed product positively influences the product's recommendation

Grounded on TPB and TRA, various papers argue at the conceptual level that a favorable attitude towards the endorsed source is expected to enhance the audience's future behavioral intentions about the promoted products/brands. Yet, few explored and confirmed the direct effect of the attitude towards digital celebrity on endorsed products/brands' purchase intention (Moldovan & Ciornea, 2019; Chetioui et al., 2020), recommendation (Moldovan & Ciornea, 2019), or engagement with endorsed content or the platform that shares it (Moldovan & Ciornea, 2019; Belanche et al., 2021). The scarce investigation can be extended if the source attitude and perceived credibility association are considered again. For instance, the positive effects of source credibility on products/brands purchase intention are well documented in the extant literature, for both traditional and digital celebrities' endorsement (Goldsmith et al., 2000; La Ferle & Choi, 2016; Seiler & Kucza, 2017; Saleem, 2017; Hani et al., 2018; Hill et al., 2020; Khan, 2018; Singh & Banerjee, 2021), although there are cases suggesting an indirect or partial effect (Ong & Ong, 2015; Schouten et al., 2020; Masuda et al., 2022; Abirami & Krishnan, 2018; Siqi & Yee, 2021); similarly, there is some precedence for a positive correlation between celebrity credibility and word of mouth (Saleem, 2017; Chapple & Cownie, 2017) or content sharing intention (Choi & Lee, 2019; Loureiro & Sarmento, 2018). These considerations give rise to the following:

H_4: *The attitude towards the endorsed source has a positive impact on the future intentions*
H_{4a}: *The attitude towards the digital celebrity positively influences the purchase intention*
H_{4b}: *The attitude towards the digital celebrity positively influences the engagement on the source's Social Media channel*
H_{4c}: *The attitude towards the digital celebrity positively influences the product's recommendation*

In addition to positive product/brand evaluation, purchase intention can be influenced by action triggers such as the message and content of the advertisement (Ku et al., 2019; Schivinski et al., 2022) or influencer-generated content (Lou & Yuan, 2019; Aggad et al., 2021;). A couple of empirical studies support that attitude towards the endorsed material, including in the context of internet celebrities, influences the purchase intention of the endorsed product/brand (Aggad et al., 2021; Paul & Bhakar, 2018; La Ferla & Choi, 2016; Goldsmith et al., 2000; Ku et al., 2019; Ong &

Ong, 2015; Singh & Banerjee, 2018). Unlike the offline environment, in online the audience can engage with the viewed content. High quality, creative and unique materials in general, and related to brand/products in particular, can increase the viewer's engagement through content likes, shares, comments/discussion and other user-generated actions (Dobrian et al., 2013; Barger et al., 2016; Hollebeek & Macky, 2019; Aggad et al., 2021) often referred as to as eWOM (Loureiro & Sarmento,2018) and lead to traditional positive product/brand referrals or WOM (Hollebeek & Macky, 2019). Since a similar outcome can be expected for endorsed materials, we propose:

H_5: *The attitude towards the endorsed content has a positive impact on the future intentions*

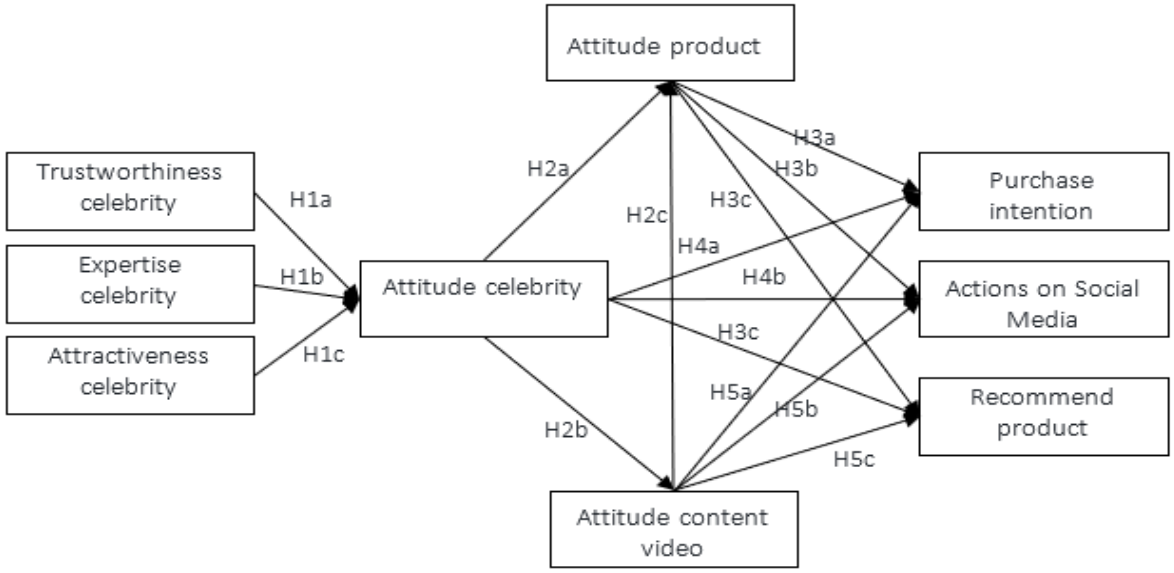
H_{5a}: The attitude towards the video content positively influences the purchase intention

H_{5b}: The attitude towards the video content positively influences the engagement on the source's Social Media channel

H_{5c}: The attitude towards the video content positively influences the product recommendation

Figure 1.

Conceptual framework



Methodology

The study is founded on an online structured quantitative survey, which used a questionnaire for data-gathering. The research population consists of Romanian users of the YouTube platform. Out of 475 questionnaires collected, 467 were validated.

Before completing the questionnaire, all respondents had to watch a 1.21-minute-long video. The paid video content was created by a nationally famous vlogger and focused on the latest laptop launched by Lenovo. The content had an amusing note, targeting younger customers and focused less on the characteristics of the product; hence, the endorsed material can be placed in the "entertaining" content/ads category (Ducoffe, 1995). The vlogger, owner of a YouTube channel with 1.5 million subscribers (thus a digital celebrity in Romania), focused on creating amusing videos or materials with product reviews (e.g. IT, cars).

Based on the literature review, nine independent constructs were considered for examination (Figure 1). One set of the factors estimated the attitude towards elements of the video: perceived trustworthiness ("trustworthiness celebrity"), expertise ("expertise celebrity") and attractiveness ("attractiveness celebrity") of the celebrity as antecedents of the audience's attitude towards the celebrity ("attitude celebrity"), the attitude towards the product advertised in the video ("attitude product") and attitude towards the content of the endorsed video ("attitude content video"). Another set of factors measured future actions that could take place after watching the video: purchase intention towards the endorsed product ("purchase intention"), intention to recommend the endorsed product ("recommend product") and engagement on celebrity's Social Media platform ("engagement SM"). The scales designed based on Moldovan and Ciornea (2019), included seven-point Semantic Differential scales for attitude measurement, respectively seven-point Likert-type scales to measure the future actions (e.g. 1= "extremely improbable" to 7= "extremely probable"). The data were analyzed using Partial Least Squares Structural Equation Modelling (PLS-SEM), the SmartPLS 3 software and a path weighting of maximum of 300 iterations (Hair et al., 2017).

Results

Respondents' profile

The sample consists of 63% women and 37% men, primarily between 18-25 years (92.5%) and 26-35 years (3.9%), falling by age, in vlogger's main audience profile. Most are considerably familiar with the platform, accessing it at least twice a week (97.8%), mainly to listen to music/watch musical videos (91%), but also for consulting reviews about products/brands (56.3%), learning DYI activities (53.1%), watching movies/trailer/shows (54.6%), amusing videos (46.7%) and tutorials (47.3%).

Measurement model

Table 1 summarizes the convergent validity and reliability values, after excluding the items with loadings below the acceptable threshold of 0.708 (Hair et al., 2019a). The values of Cronbach's alpha, composite reliability (CR), rhoA and indicator's loading meet the literature recommendations (>0.70), confirming the internal consistency reliability and indicator reliability, whilst the average variance extracted (AVE) values greater than 0.50 support the acceptable convergent validity of the measurement model (Hair et al., 2019a).

Table 1.

Convergent validity and reliability assessment

Construct	Item	Loading	AVE	CR	Alpha	rhoA
Trustworthiness	honestC	0.864	0.684	0.915	0.884	0.890
celebrity	reliableC	0.767				
	sincereC	0.859				
	dependableC	0.789				
	trustworthyC	0.852				
Expertise celebrity	qualifiedC	0.865	0.758	0.940	0.920	0.922
	experiencedC	0.875				
	informedC	0.864				
	skilledC	0.868				
	expertC	0.882				
Attractiveness celebrity	attractiveC	0.831	0.667	0.889	0.832	0.836
	handsomeC	0.852				
	elegantC	0.748				
	beautifulC	0.832				
Attitude celebrity	favourableC	0.909	0.826	0.950	0.930	0.930
	interestingC	0.902				
	goodC	0.898				
	likeC	0.926				
Attitude product	usableC	0.827	0.785	0.948	0.931	0.931
	goodC	0.904				
	likeC	0.902				
	favourableC	0.909				
	interesting	0.885				
Attitude content video	informativeCV	0.882	0.730	0.931	0.911	0.907
	valuableCV	0.867				
	helpfulCV	0.896				
	truthfulCV	0.850				
	highproductionqualityCV	0.772				
Purchase intention	purchase1	0.905	0.845	0.942	0.908	0.909
	purchase2	0.934				
	purchse3	0.919				
Engagement SM	likevideoYC	0.772	0.716	0.926	0.902	0.935
	sharereviewYC	0.872				
	subscribeYC	0.899				
	postcommentYC	0.756				
	recommendYV	0.919				
Recommend product	recommendP	1.000	1.000	1.000	1.000	1.000

The discriminant validity of the model was assessed with heterotrait-monotrait ratio of correlations HTMT (Hair et al., 2017). All HTMT values and HTMT inference results (Table 2) obtained through a 5000 samples bootstrapping procedure and BCa (Bias-corrected and accelerated), are lower than the recommended threshold of 0.90, supporting the discriminant validity between constructs (Hair et al., 2019a).

Table 2.

Assessment of discriminant validity - HTMT & HTMT inference results

Construct	ESM	AtP	AtCV	AtC	AtrC	ExC	PI	ReP
ESM	----							
AtP	0.534 [0.437-0.623]	-----						
AtCV	0.656 [0.538-0.720]	0.785 [0.733-0.833]	----					
AtC	0.709 [0.651-0.763]	0.644 [0.566-0.717]	0.752 [0.694-0.804]	----				
AtrC	0.589 [0.511-0.662]	0.558 [0.468-0.640]	0.656 [0.570-730]	0.654 [0.572-728]	----			
ExC	0.577 [0.510-0.641]	0.625 [0.544-0.697]	0.791 [0.736-0.841]	0.687 [0.626-0.743]	0.599 [0.520-0.671]	-----		
PI	0.650 [0.565-0.729]	0.731 [0.672-0.785]	0.654 [0.568-0.714]	0.536 [0.457-0.611]	0.462 [0.370-0.549]	0.487 [0.403-0.560]	-----	
ReP	0.663 [0.583-0.736]	0.690 [0.636-0.741]	0.635 [0.568-0.696]	0.565 [0.493-0.635]	0.455 [0.368-0.534]	0.469 [0.389-0.542]	0.847 [0.803-0.883]	-----
TrC	0.587 [0.511-0.657]	0.610 [0.520-0.690]	0.762 [0.690-0.823]	0.771 [0.718-0.818]	0.586 [0.500-0.666]	0.810 [0.759-0.853]	0.487 [0.395- 567]	0.478 [0.389-0.552]

Note. Engagement SM(ESM), Attitude product (AtP), Attitude video content (AtCV), Attitude celebrity (AtC), Attractiveness celebrity (AtrC), Expertise celebrity (ExC), Purchase intention (PI), Recommend product (ReP), Trustworthiness celebrity (TrC)

Outside the brackets -HTMT values, in brackets -95% BCa confidence intervals of the HTMT statistics

Structural model

The structural model assessment implied the use of the Bootstrap sub-sample technique with 5000 cases (Hair et al., 2011). The results exhibiting the path coefficients and the t-values accompanied by the statistical significance (Table 3), confirm that most of the proposed hypotheses are supported (t-values>1.96, $p<0.05$ - Hair et al., 2011). The findings reveal that “trustworthiness celebrity”, “expertise celebrity” and “attractiveness celebrity” have significant and positive effects on “attitude celebrity”. Similarly, “attitude celebrity” has a significant and positive effect on “attitude product”, “attitude content video”, “engagement SM” and “recommend product”, whereas “attitude content video” has a significant and positive effect on “attitude product”, “purchase intention”, “recommend product” and “engagement SM”. In addition, “attitude product” has a significant and positive effect on “purchase intention” and “recommend product”. Two exceptions are the effect of “attitude product” on “engagement SM”, respectively the effect of “attitude celebrity” on “purchase intention”, which are not statistically significant. Concluding, the hypotheses H1, H2 and H5 are supported, whereas the hypotheses H3 and H4 are only partially supported.

Table 3.
Path coefficients

	Path relationship	β value	t-value	Hypothesis
H1a	Trustworthiness celebrity – Attitude celebrity	0.440	8.434***	Supported
H1b	Expertise celebrity – Attitude celebrity	0.178	3.515***	Supported
H1c	Attractiveness celebrity – Attitude celebrity	0.261	6.617***	Supported
H2a	Attitude celebrity – Attitude product	0.191	3.602***	Supported
H2b	Attitude celebrity – Attitude content video	0.692	25.556***	Supported
H2c	Attitude content video – Attitude product	0.590	13.440***	Supported
H3a	Attitude product – Purchase intention	0.596	10.946***	Supported
H3b	Attitude product – Engagement SM	0.042	0.670	Not Supported
H3c	Attitude product – Recommend product	0.444	9.356***	Supported
H4a	Attitude celebrity– Purchase intention	0.060	1.012	Not supported
H4b	Attitude celebrity – Engagement SM	0.465	8.548***	Supported
H4c	Attitude celebrity – Recommend product	0.156	2.676**	Supported
H5a	Attitude content video – Purchase intention	0.195	3.133***	Supported
H5b	Attitude content video – Engagement SM	0.263	4.292***	Supported
H5c	Attitude content video – Recommend product	0.177	2.822**	Supported

Note. * p<0.05, ** p<0.01, *** p<0.005

Most of the effect sizes between constructs measured with f2 (Table 4), fall into small and medium categories, but there are also large effects too (Hair et al., 2019a); as expected, for the constructs without a statistically significant relationship the effects are missing. The results can be considered satisfying as it is "unusual and unlikely" for a model to be dominated by large effect size constructs (Benitez et al., 2020).

Table 4.
f^2 effect sizes

	Path relationship	f^2	effect sizes
H1a	Trustworthiness celebrity – Attitude celebrity	0.202	medium
H1b	Expertise celebrity – Attitude celebrity	0.032	small
H1c	Attractiveness celebrity – Attitude celebrity	0.111	small
H2a	Attitude celebrity – Attitude product	0.042	small
H2b	Attitude celebrity – Attitude content video	0.921	large
H2c	Attitude content video – Attitude product	0.395	large
H3a	Attitude product – Purchase intention	0.216	medium
H3b	Attitude product – Engagement SM	0.002	no effect
H3c	Attitude product – Recommend product	0.177	medium
H4a	Attitude celebrity– Purchase intention	0.003	no effect
H4b	Attitude celebrity – Engagement SM	0.215	medium
H4c	Attitude celebrity – Recommend product	0.024	small
H5a	Attitude content video – Purchase intention	0.027	small
H5b	Attitude content video – Engagement SM	0.051	small
H5c	Attitude content video – Recommend product	0.023	small

Note. 0.02-0.15 - small, 0.15 -0.35 medium, >0.35 - high

Although the indicator R2 cannot provide the model's out of sample predictive power and is more of a rough guideline, it was considered for the model's in-sample explanatory power assessment (Hair et al., 2019b). Findings in Table 5 show that the latent variables manifest a weak

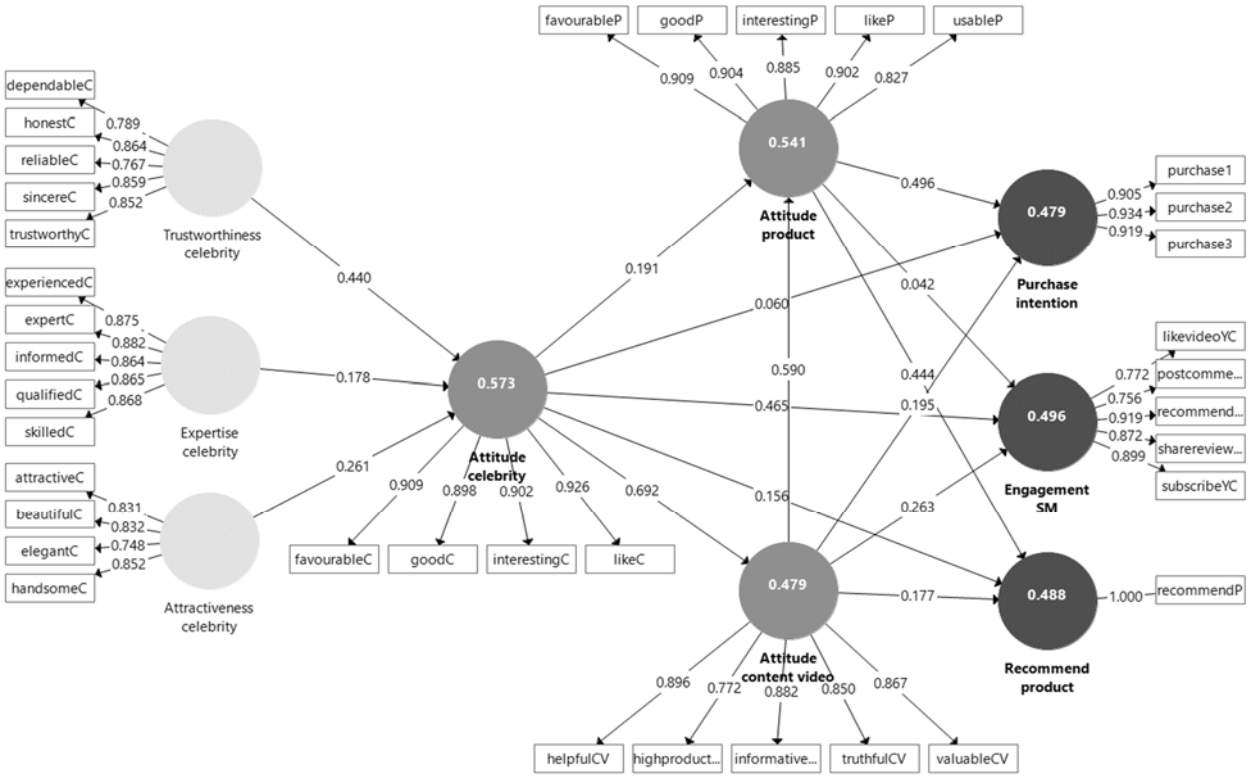
to moderate or moderate explanatory power (all values are close to the moderate threshold 0.50 - Hair et al., 2011). For example, it can be mentioned that the perceived celebrity's trustworthiness, expertise and attractiveness explain 57.3% of variance in audience's attitude towards the celebrity. Besides, Q2 values computed throughout the blindfolding procedure, are larger than 0, meaning that the path model has a predictive relevance for the examined constructs (Hair et al., 2017).

Table 5.
R^2 and Q^2 values

Construct	R^2	Q^2
Attitude celebrity	0.573	0.468
Attitude product	0.541	0.420
Attitude content video	0.479	0.346
Purchase intention	0.479	0.401
Engagement SM	0.496	0.339
Recommend product	0.488	0.479

A visual synthesis of the estimated model considering the path coefficients is depicted in Figure 2.

Figure 2.
Estimated model



Discussion and conclusions

To sum up, the general model illustrated that most hypotheses are supported.

The audience's attitude towards the digital celebrity is influenced by the level of perceived trustworthiness, expertise and attractiveness, of which trustworthiness seems to have the greatest

effect. The source's characteristics impact on attitude is in line with Moldovan and Ciornea's (2019) previous inquiry, however, the dominant predictor differs. With both endorsed products in the IT field, the key difference between the studies lies in the content, one falling into the informative ads category and the other into entertaining (Ducoffe, 1995). In 2019's research, the spokesperson's message centred on the analytical description of the product, thereby it could have suggested a higher expertise; instead, in the current study, he focused on the entertaining side and less on the product review. In view of this, it can be assumed that the perception of source characteristics may depend on the endorsing material and what attributes it highlights. Nevertheless, more research is needed to confirm the assumption. Since the three characteristics only partially explain the variance in audience's attitude towards the celebrity, future investigations may incorporate additional attributes such as: similarity/homophily, familiarity, celebrity-product/brand congruency, etc. (Bergkvist & Zhou, 2016; Knoll & Matthes, 2017; Leung et al., 2018).

The attitude towards the endorser is positively correlated with the attitude towards the endorsed product and the content, supporting the conclusions of prior studies (Fleck et al., 2012; Moldovan & Ciornea, 2019; Chetioui et al., 2020), but also showing that the widely accepted view on image transfer extends to digital celebrities and beyond endorsed products/brands (Amos et al., 2008) to ads. Additionally, resembling Moldovan and Ciornea's (2019) outcomes, the attitude towards the digital celebrity influences the engagement on source's Social Media platform and the referrals of the endorsed products, and not only when there is a positive pre-existing relationship between the parts (Chapple & Cownie, 2017). Although few studies directly tackled the association between the attitude towards digital celebrity and purchase intention of the endorsed product/brand (Moldovan & Ciornea, 2019; Chetioui et al., 2020), their results confirming a positive relationship are not consistent with the present investigation that found no direct effect. This outcome can be justified, as the endorsed product in the current study (a laptop) is a durable good with a less frequent acquisition, higher price and a risk, hence it is expected to lead to a high-involvement purchase (Lotfizadeh & Lotfizadeh, 2015) in which the consumer's time and energy will be reflected in a complex buying behavior. The direct effect absence was also confirmed by Singh & Banerjee (2018) in the case of celebrity endorsement for a motorbike/scooter, also high-involvement acquisitions. For this reason, it can be presumed that for specific products, the favorable attitude towards the endorser is not enough to activate the purchase intention, instead, the effect can be indirect and mediated by a positive attitude towards the brand or content. Nevertheless, in-depth research is needed to validate if the celebrity's influence varies depending on the categories of products endorsed.

The attitude towards the endorsed product has a positive impact on the purchase intention, a relationship in line with the previous works on digital celebrities (Moldovan & Ciornea, 2019; Chetioui et al., 2020; Aggad et al., 2021), but also on traditional celebrities (La Ferle & Choi, 2016; Singh & Banerjee, 2018; Seiler & Kucza, 2017; Muda et al., 2014; Min et al., 2019). Similarly, the results indicate a positive influence of the attitude towards the product on future recommendations, but a lack of direct effect on engagement on the source's Social Media platform which could be attributed to a possible mediation by the content. Although only the first relationship is aligned with prior research (Moldovan & Ciornea, 2019; Chapple & Cownie, 2017), it must be emphasized that

the direct effect in case of both digital and traditional celebrities' endorsement is barely examined, and the contradictory outcomes confirm the need for further empirical research.

Regarding attitude towards the endorsed content, the outcomes show a positive influence on all variables, namely purchase intention, attitude towards the product, product recommendation and engagement of source's Social Media platform. This is consistent with previous studies mostly on traditional celebrities (Paul & Bhakar, 2018; Aggad et al., 2021; La Ferle & Choi, 2016; Seiler & Kucza, 2017; Singh & Banerjee, 2018; Muda et al., 2014), although there are also papers with contradictory finding. One intriguing example of digital celebrities is Moldovan and Ciornea's (2019) research, which validated the attitude towards endorsed content – attitude towards product relationship, yet found no effects for the rest. Since the main difference between the studies lies in content creation (entertaining versus informative), the comparison reveals that a creative endorsing material/ad can increase the audience's engagement as the literature suggests for other situations (Barger et al., 2016).

The main limits of the study lie in the use of a singular digital celebrity, one endorsement activity and the demographics of the sample narrowed to one country.

Since several relationships considered in this study are scarcely addressed in the literature, it still calls for more analyses and exploration before practical implementation. Nonetheless, one managerial implication for the marketing management is to consider extending the use of digital celebrities in endorsing products/brands outside the standard beauty and fashion domains, because the transfer of their image takes place including for high-involvement and complex purchases. Another managerial implication refers to the endorsing material. The marketing team should not focus only on identifying the right digital celebrity (with an amount of trustworthiness, expertise and attractiveness), but also on creating endorsing content that highlights or intensifies the characteristic wanted to be dominant.

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www.facebook.com

www.Instagram.com

https://socialblade.com/

https://us.weibo.com/

www.youtube.com

Appendix

Appendix 1

Examples of celebrity endorsement in various fields

Domain	Product type	Endorsed brand	Celebrity	Celebrity type	Brand type
fashion	clothing & leather goods	Louis Vuitton	BTS singers	singers	luxury
fashion	clothing	Nike	Michael Jordan	sportsman	premium
fashion	clothing	H&M	Lay Zhang Yixing	singer	mass market
fashion	clothing	Gucci	Lu Han	singer & actor	luxury
fashion	jewellery	Bvlgari	Priyanka Chopra	actress	luxury
fashion	jewellery	Swarovski	Miranda Kerr	supermodel	premium
fashion	jewellery	Cartier	Yasmine Sabri	actress	luxury
fashion	watches	Jaeger-LeCoultre	Benedict Cumberbatch	actor	luxury
beauty & body care	body care	Clear Men	Cristiano Ronaldo	sportsman	mass market
beauty & body care	perfumery	Chanel No 5.	Brad Pitt	actor	luxury
beauty & body care	make-up	MAC Cosmetics	Lisa – Blackpink	singer	premium
beauty & body care	toothpaste	Colgate	Kiara Advani	actress	mass market
beauty & body care	cosmetics	L'Oreal	Mona Zaki	actress	mass market
detergents	dishwashing detergent	Fairy	Iretiola Doyle	actress	mass market
food	beverage	Pepsi	Beyonce Knowles	singer	mass market
food	beverage	Coca-Cola	Taylor Swift	singer	mass market
food	coffee	Nespresso	George Clooney	actor	mass market
food	chips	Lays	Kritt Amnuaydechkorn	actor & singer	mass market
spirits & wine	whiskey	Jim Bean	Leonardo diCaprio	actor	premium
spirits & wine	champaigne	Moet & Chandon	Roger Federer	sportsman	luxury
medicine & supliments	medicine	Advil - Pfizer	Jon Bon Jovi	singer	mass market
furniture & home deco	furniture	Essa	Park Seo Jun	actor	premium
auto/transport vehicle	cars	Audi	Wang Yibo	actor & singer	premium
auto/transport vehicle	scooter	Honda Scoopy	Putthipong Assaratanakul	actor & singer	premium
auto/transport vehicle	yachts	Oyster Yachts	Eddie Jordan	sportsman	luxury
sports professional gear	swimwear	Speedo	Michael Phelps	sportsman	premium
sports professional gear	MMA & boxing gear	RDX Sports	Anthony Joshua	sportsman	premium
IT & appliances	smartphone	Samsung	Millie Bobby Brown	actress	mass market - premium
IT & appliances	domestic appliances	LG	Felipe Simas	actor	premium
IT & appliances	domestic appliances	DeLonghi	Brad Pitt	actor	premium
financial services	banking	Raiffeisen Bank	Novak Đoković	sportsman	mass market
hospitality	hotel chain	Mandarin Oriental Hotel	Morgan Freeman	actor	luxury
traveling	air line	Emirates Airline	Jennifer Anniston	actress	premium
restaurant	food chain	McDonalds	Justin Timberlake	singer & actor	mass market
education (private)	online educational programs	Great Learning	Virat Kohli	sportsman	premium
NGO	humanitarian organization	Unicef	Orlando Bloom	actor	-

(www.instagram.com; https://us.weibo.com/; www. facebook.com; www.youtube.com)

Appendix 2

Top 50 most followed Social Media accounts

Top 50 most followed Social Media accounts	Minimum followers	Digital celebrities	Traditional celebrities	Business & sport clubs, others
Instagram	65 million	1	41	8
Youtube	40 million	11+1	11	27
Facebook	50 million	0	21	30
Twitter	35 million	0	34-1	14-1
Tik-Tok	30 million	39	9	1

(based on https://socialblade.com/)

Appendix 3

Traditional celebrities - examples in online endorsement on celebrity's personal accounts

Type of field	Celebrity	Country	Endorsed brands	SM platform
acting	Park Seo Jun	South Korea	Chanel, Calvin Klein, Essa (sofa)	Instagram
acting	Zendaya	US	Valentino, Balmain, Lancome	Instagram
acting	Gong Jun	China	Louis Vuitton, Fendi, Tiffany & Co,	Instagram
acting	Priyanka Chopra	India	Bvlgari, Crocs	Instagram
acting	Millie Bobby Brown	UK	Pandora, Vogue Eyewear, Converse, Samsung	Instagram
acting	Felipe Simas	Brazil	Mercado Pago, LG, Dentisin, Johnson's, Kopenhagen	Instagram
acting & singing	Kritt Amnuaydechkorn	Thailand	Gucci, Prada, Valentino, OPPO, Celine	Instagram
acting & singing	Tomohisa Yamashita	Japan	Dior, IHerb	Instagram
acting & singing	Wang Yibo	China	Chanel, Audi	Weibo
singing	G-Dragon	South Korea	Chanel, Nike	Instagram
singing	Wizkid	Nigeria	Tommy Hilfiger, Puma	Instagram
singing	Dualipa	US	Versace, Puma, YSL	Instagram
singing	Ariana Grande	US	Ulta beauty, R.E.M. Beauty	Instagram
singing, DJ	Ahmad Al Ghazali Kohler	Indonesia	L'oreal, Louis Vuitton, Samsung Galaxy	Instagram
sports	Simona Halep	Romania	Hublot, Rexona, Nike	Instagram
sports	Simone Biles	US	Oreo, Visa, Masteclass	Instagram
sports	Naomi Osaka	Japan	TAG Heuer, Levis, Yonex, Louis Vuitton	Instagram
sports	Novak Đoković	Serbia	Peugeot, Hublot, Raiffeisen Bank	Instagram
sports	Cristiano Ronaldo	Portugal	Clear Men, Live Score, Insparya, Talabat, Nike	Instagram
sports	Virat Kohli	India	Great Learning, Puma, Hero MotoCorp,Vivo	Instagram

(www.instagram.com; https://us.weibo.com/)

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Conflict of Interests

No, there are no conflicting interests.